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Are sky divers airmen?
Are they FAA regulated?
No and Yes and Why.
See page 8.

FAA AVIATION NEWS

DEPARTMENT OF TRANSPORTATION / **FEDERAL AVIATION ADMINISTRATION** VOL. 8, NO. 12

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John A. Volpe, *Secretary of Transportation*

John H. Shaffer, *Administrator, FAA*

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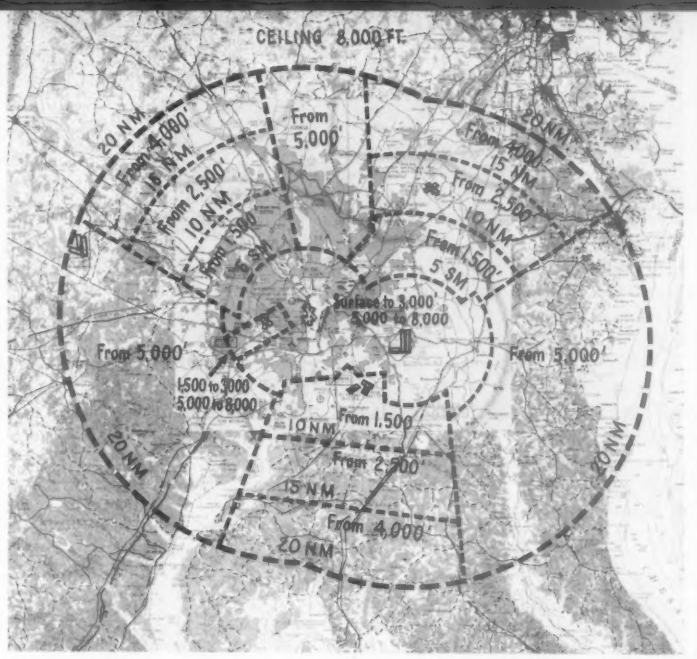


Plan view of proposed design for terminal control area covering airports at or near Washington, D. C. VFR aircraft will not be under control in airspace below the altitudes designated in each sector. Design will vary according to local needs.

TCA / a new concept

The Federal Aviation Administration of the Department of Transportation has modified the proposed rule which would establish terminal control areas around airports serving 22 major cities and impose special operating and equipment requirements on all flights in this airspace.

The changes, many of which were suggested by airspace users during hearings held in each of the cities affected by the proposed rule, are aimed at minimizing restrictions on aircraft operations in and around the terminal control areas wherever possible, without sacrificing the vital safety features.

The modified proposal would divide the 24 airports in these 22 hub areas (the New York hub includes three airports) into two separate groups with 10 in Group I and the remaining 14 in Group II. The 10 airports in Group I are those with at least 3.5 million enplaned passengers and 300,000 operations annually with at least 60 per cent of the operations accounted for by the air carriers. They are Atlanta, Boston, Dallas, Kennedy, LaGuardia, Los Angeles, Miami, O'Hare, San Francisco and Washington National. In 1969, these ten airports accounted for 60 million enplaned passengers or slightly more than 41 per cent of the national total.

The 14 airports in Group II are: Cincinnati, Cleveland, Denver, Detroit, Houston, Kansas City, Las Vegas, Minneapolis, Newark, New Orleans, Philadelphia, Pittsburgh, Seattle and St. Louis.

The major change applicable to both Group I and Group II locations is a relaxation of the requirement that all aircraft be transponder equipped to operate in terminal control areas. Under this change, a transponder would not be required for helicopter operations within terminal control areas, or for IFR operations to or from satellite airports. Another change would be to drop the proposed 1,500-foot minimum ceiling requirement at the primary airport for VFR operations within terminal control areas. Instead, the normal 1,000-foot ceiling would apply.

As proposed in the original notice, all aircraft operating within either Group I or Group II terminal control areas would be required to be equipped with:

(1) A VOR or TACAN receiver
(2) Two-way radio

In addition, a 200-knot speed limit would be imposed for operations underneath the terminal control areas.

For Group I locations, an air traffic control (ATC) clearance would still be required to enter the terminal control area around these airports; all aircraft operating in the terminal control area would be provided with separation service by ATC; and solo student pilots would be banned from this airspace.

For Group II locations, ATC clearance would still be required in order to enter the terminal control area. However, complete separation service (separation from VFR as well as IFR aircraft) would be provided only to large turbine-powered aircraft. Major changes from the initial proposed rule are that transponders would not be required for VFR operations in the terminal control area and solo student pilots would not be prohibited from this airspace by the rule.

At both Group I and Group II locations, the size and shape of the terminal control areas would be designed to raise the floors as high as possible. This would provide additional airspace for operations underneath the terminal control areas. Airspace for use by VFR transiting airplanes will be established in the terminal control areas, where feasible. Individual notices of proposed rulemaking will be issued for each location.

FAA Administrator John H. Shaffer has received over 1,800 written comments on the original proposal and has amassed over 5,000 pages of hearing transcripts.

The agency's initial rule-making proposal on the terminal control areas was announced on September 30, 1969. Many counter-proposals were received, and most suggested a corridor plan, one for each major runway, in lieu of the terminal control area configurations, which are roughly circular in shape, increasing in diameter as they increase in altitude.

William M. Flener, Director of FAA's Air Traffic Service, has explained that the corridor concept does not provide ATC sufficient airspace to maneuver aircraft, and eliminates the flexibility necessary in large hub areas. Due to the varying operating characteristics of aircraft using corridors, hub capacity would be drastically reduced. An estimate of the effect of a corridor plan at Washington National Airport, for example, showed a reduction in capacity of between 30 and 50 per cent.

Public comments on the modified terminal control area proposal (Docket No. 9880; Notice 69-41B) should be sent to: FAA Rules Docket GC-24, 800 Independence Ave., S.W., Wash., D.C., 20590, before April 24, 1970.

Don Byers

SEEN AND UNSEEN II

Second in a series of articles on midair collisions in general aviation

Letdown time is no time to let up on vigilance in the cockpit. Airports are where most midairs occur.

For many pilots, the moment when the airport of destination comes into sight is a time when much of the tension of flying disappears. The journey is virtually over, the problems of navigation are behind, the charts can be folded and put away, and you may already be thinking about a hot shower and a warm meal. The tendency to relax at this point, when all apparent dangers are past, is natural, but it must be resisted if you wish to avoid contributing to accident statistics. *Airports are where most midair collisions take place.*

Of the 38 midair collisions reported in 1968 by the National Transportation Safety Board, 24 occurred over or in the vicinity of an airport: 20 of these occurred while approaching to land. One took place on the downwind leg, 6 on base, and 13 on final. Statistically thinking, the closer your aircraft comes to touchdown (especially at an uncontrolled airport) the greater the danger of being involved in a midair collision.

The fact that all of these collisions took place in broad daylight, in VFR conditions, indicates that the problem is essentially one of pilot vigilance. The final landing phase is a time when the pilot is maneuvering the aircraft with respect to attitude control, airspeed, runway alignment, etc. He is also concerned with wind speed and direction and traffic or obstacles on the ground. He may be making an adjustment of flaps or even landing gear. He may also be attending to instructions from air traffic control.

No Time to Relax

Because of all these demands on his attention, the pilot may be tempted to relax his constant visual scanning for other aircraft. To do so is to invite disaster. Pattern altitudes and procedures vary from one airport to another; the patterns are entered by a variety of aircraft handled by pilots with a variety of skills and experience. Unlike superhighways, runway patterns have no separate lanes for slow or fast aircraft. Flying the aircraft down smoothly is only half of the job; watching for other aircraft with simultaneous intentions is the other, equally important, half.

Significantly, half of the collisions around airports in 1968 involved flight instructors. Presumably the additional duties involving student instruction and flight monitoring and the nature of their work makes for longer exposure in the airport traffic pattern.

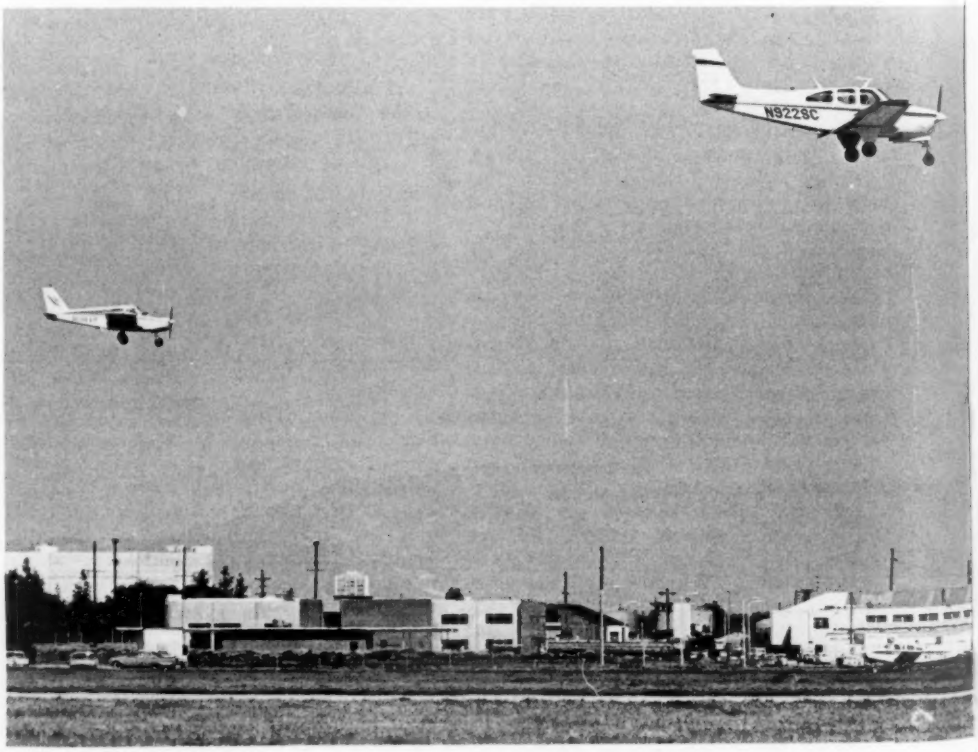
Practice flying is necessary to maintain proficiency, but care must be taken to resist becoming so absorbed in performing a maneuver perfectly that scanning is neglected, and a situation develops where two aircraft attempt to occupy the same airspace at the same time with tragic consequences. In the following example, fortunately, occupants of both aircraft survived, but learned a lesson they will not easily forget.

On a bright, clear morning in September 1968, two Cessna 150s were practicing touch-and-go landings at Hamilton Airport, near Cincinnati, Ohio. Cessna No. 1 was flown by a 28 year-old student pilot. Cessna No. 2 was flown by a private pilot, with a passenger-observer in the right-hand seat.

After several touch-and-go landings and take-offs had been accomplished, Cessna No. 1 was on final approach to land when, according to the student pilot's brief statement, an aircraft *landed on top of him.*

The second Cessna pilot's statement was more explicit: ". . . Objective was local flying, air work and practice landings. Passenger was indoctrinated in and effective at observing air traffic. . . . Stayed in standard pattern to make one more touch-and-go. Near end of downwind leg reminded passenger to look for other traffic. None was seen in the pattern. Made a descending left turn to base leg, applied 20 degrees of flaps, looked for conflicting wide base or final traffic—saw none. Inspected field, saw one aircraft climbing out and runway clear. Turned final, set full flaps with glide path to touch down at third centerline mark from the end of runway as a practice point.

"Passed over the end of the field at approximately 60 mph, was starting to flare and approaching second centerline mark in position to land at the third mark when a jolt like a rough landing and noise was experienced with no apparent cause. Looking down to the left, involvement with a plane beneath me was apparent. My reaction was that the plane was taking off under



me. It appeared to pitch slightly and swerve to the right, carrying us both to the right, contacting the ground in an unfavorable attitude on the right side of the runway and skidding partly onto the turf. . . ."

Although both aircraft were damaged extensively, there was no fire on impact and the three occupants of the two airplanes escaped with only slight injury. They were extremely lucky.

Two on Final

An eyewitness on the ground was within listening distance of the UNICOM radio: "I heard aircraft No. 1 call on 122.8 advising left downwind (turn) for Runway 11. No other radio call was heard."

The witness added that "while looking in a westerly direction, I noticed two aircraft on final approach for the same runway, Runway 11. I heard a radio call from another plane advising No. 2 he was coming in on top of No. 1. Several seconds later No. 2 collided with No. 1 at about 15 feet above the ground. No. 2 struck No. 1 from above and on the right side.

"For a period of very short duration both planes remained together, then separated and struck the ground nose first. . . ."

When the pilot of No. 2 aircraft was asked if he was monitoring his radio, he replied, according to the National Transportation Safety Board report, that he had a VOR station tuned, not 122.8.

The pilot of a third aircraft holding short of the active runway testified; "I first noticed the No. 2 airplane at about 200 feet . . . on final approach. I attempted to contact (and advise them) to pull up about five times, to no avail, and they continued to the runway until he landed on top (of the other aircraft). I could do nothng but watch."

The NTSB investigation concluded that the probable cause was the failure of both pilots to watch out for other aircraft.

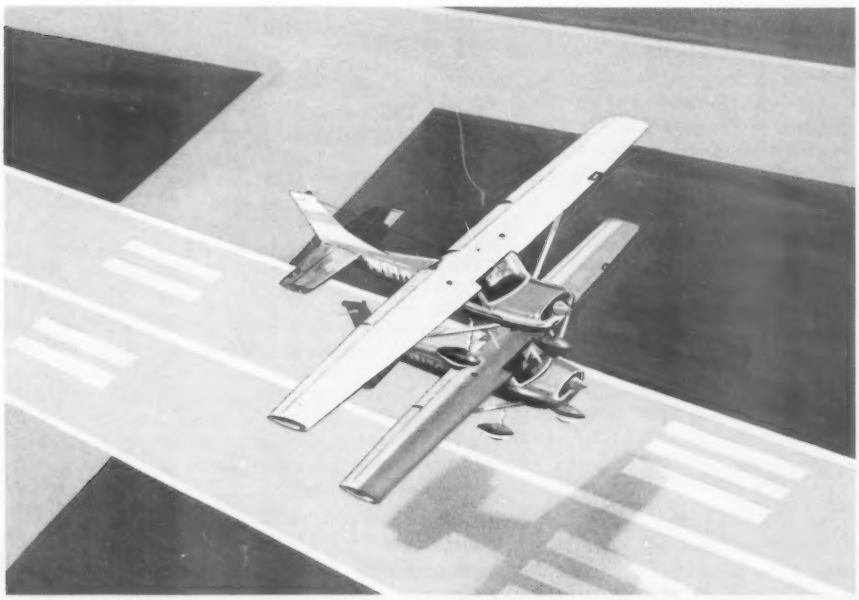
On first consideration it may appear difficult to imagine how two aircraft of the same type, engaged in the same practice maneuver, one obviously following the other, could attempt to land on the same exact spot at the exact same time without being aware of the other's presence. It is tempting to regard this as a one-in-a-million accident. But there are many possibilities for aircraft so engaged to lose contact—especially if they are not monitoring the UNICOM and reporting approach positions.

On takeoff, for example, if the first aircraft makes a fast, shallow climbout while the second aircraft climbs at the best rate of climb, they will quickly lose sight of each other. On leveling off, each aircraft may be a hundred feet or more at variance with the pattern altitude, and due to blind areas formed by the wing or cabin, the occupants may be unable to see each other.

On downwind, one aircraft may extend well beyond the normal distance and be presumed to be departing the pattern.

A pilot on a short base may have to turn on final before he has been able to scan carefully for other aircraft making long straight-in approaches.

The pilot making a straight-in approach may, because of a cross wind, hold a crab angle that impairs his lefthand-side visibility.



Left—at busy general aviation airports, like Van Nuys Field in California, half a dozen aircraft may be maneuvering for the same runway at the same time. Monitor the tower or UNICOM frequency. **Above**—airborne landing. Two identical aircraft, both intent upon the same runway approach, made contact just before landing as upper plane's wheels struck the wing of the lower craft. Pilots and passengers escaped injury in their collision at Hamilton Airport, Ohio, but others have not been so lucky.

At virtually every point in the airport traffic pattern the potential exists for loss of visual contact. When a number of aircraft are in the pattern, it is very easy to lose track of one or more, especially against a landscape mottled with sunshine and shadow, or against a low sun. During the flare-out, with the nose held high, it is virtually impossible for the pilot or observer to see directly below, or above and behind.

Eyes, Ears, Voice Needed

For all these reasons, it is important to use ears and voice, as well as eyes, in maintaining contact with other aircraft in the pattern. The UNICOM channel 122.8 should be monitored continuously, once the approach to the airport has begun. When inbound, tune in the frequency about 15 miles from the airport and listen for any other aircraft communicating with the UNICOM operator. About five miles out, inform UNICOM of your position, altitude and intentions. Report upon *entering the pattern, turning base, and turning on final approach.* When outbound, call UNICOM before taxiing and give your position on the airport and your intentions.

The UNICOM operator is not an air traffic controller and has no authority to control traffic nor any responsibility for providing information. He may not be in a position to tell you anything more than the fact that there is traffic in the area—and at times he may be away from the radio. But by listening to transmissions on the 122.8 frequency and by giving position reports, you can assist the process of visual recognition within the airport pattern.

Inexperienced pilots, flying alone in a busy or unfamiliar airport pattern, may find themselves so taken up with the procedural steps for landing (not to mention looking out for other aircraft) that they literally have no time to handle the transmitter.

They can, however, listen to 122.8 and make certain that they spot all reported traffic in their vicinity. And if traffic reported landing ahead cannot be seen, a go-around is likely to be much safer than a landing.

Leaving the pattern under such conditions, it is advisable to report intentions to UNICOM in clear detail—". . . PIPER THREE FIVE ZEBRA, on final approach for Runway SEVEN, over red barn, at SIX HUNDRED, leaving pattern for go around, heading ZERO THREE ZERO, climbing to ONE THOUSAND." An explicit transmission of this kind will be appreciated by everyone else in the pattern and save a lot of worry and confusion.

Entering the pattern is no time to relax in the cockpit. The proximity of numerous other aircraft all destined to land on the same small patch of earth calls for maximum vigilance, correct flying procedures, and in the event of uncertainty, a willingness to take the time to do it over again and do it right.

Lewis Gelfan

FARs

STATUS of the FEDERAL AVIATION REGULATIONS

April 1st, 1970

Thirty-eight Federal Aviation Regulations have been collected in volumes now sold only by the United States Government Printing Office. Changes to these FARs are now provided automatically to subscribers in the form of "Transmittals."

The 21 FARs not yet volumized are still available from the Federal Aviation Administration Distribution Office, TAD 484.3, 800 Independence Ave., S.W., Washington, D. C. 20590. ■

Order from: United States Government Printing Office, Wash., D.C. 20402

VOLUME NO.	TITLE	PRICE
Vol. I, Part 1:	Definitions and Abbreviations	$1.50 + 50¢ foreign mailing
Vol. II:	(Transmittals 1-3)	$8.00 + $2.00 foreign mailing
Part 11	General Rule-making Procedures	
Part 13	Enforcement Procedures	
Part 15	Nondiscrimination in Federally Assisted Programs of the FAA	
Part 21	Certification Procedures for Products and Parts	
Part 37	Technical Standard Order Authorizations	
Part 39	Airworthiness Directives	
Part 45	Identification and Registration Marking	
Part 47	Aircraft Registration	
Part 49	Recording of Aircraft Titles and Security Documents	
Part 183	Representatives of the Administrator	
Part 185	Testimony by Employees and Production of records in Legal Proceedings and Service of Legal Process and Pleadings	
Part 187	Fees	
Part 189	Use of Federal Aviation Administration Communications System	
Vol. V:	(Transmittal 1)	$3.00 + 75¢ foreign mailing
Part 43	Maintenance, Preventive Maintenance, Rebuilding and Alteration	
Part 145	Repair Stations	
Part 149	Parachute Lofts	
Vol. VI:	(Transmittals 1-2)	$5.50 + $1.25 foreign mailing
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Part 93	Special Air Traffic Rules and Airport Traffic Patterns	
Part 99	Security Control of Air Traffic	
Part 101	Moored Balloons, Kites, Unmanned Rockets and Unmanned Free Balloons	
Part 103	Transportation of Dangerous Articles and Magnetized Materials	
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Part 25	Airworthiness Standards: Transport Category Airplanes	2.25	19
Part 27	Airworthiness Standards: Normal Category Rotorcraft	.70	3
Part 29	Airworthiness Standards: Transport Category Rotorcraft	2.00	4
Part 31	Airworthiness Standards: Manned Free Balloons	.20	2
Part 33	Airworthiness Standards: Aircraft Engines	.40	3
Part 35	Airworthiness Standards: Propellers	.30	2
Part 61	Certification: Pilots and Flight Instructors	1.25	31
Part 63	Certification: Flight Crewmembers Other Than Pilots	.55	11
Part 65	Certification: Airmen Other Than Flight Crewmembers	.45	13
Part 67	Medical Standards and Certification	.25	7
Part 121	Certification and Operations: Air Carriers and Commercial Operators of Large Aircraft	2.00	35
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Part 135	Air Taxi Operators and Commercial Operators of Small Aircraft	.35	6
Part 137	Agricultural Aircraft Operations	.25	3
Part 141	Pilot Schools	.35	8
Part 143	Ground Instructors	.25	3
Part 147	Mechanic Schools	.20	1

* Changes to individual airspace designations and airways descriptions, individual restricted areas and individual jet route descriptions are not included in the basic Parts 71, 73 and 75, respectively, because of their length and complexity. Such changes are published in the Federal Register and are included on appropriate aeronautical charts.

** Due to the complexity, length, and frequency of issuance, airworthiness directives, enroute IFR altitudes and instrument approach procedures are published in the Federal Register and are not included in basic Parts 39, 95 and 97. In addition, enroute IFR altitudes and instrument approach procedures are published in the "Airman's Information Manual," and are depicted on aeronautical charts.

Hotshots & Grandpops

Moving up the ladder of success often means moving up to higher performance aircraft. Age itself may not be as much of a safety hazard as the effects of affluence.

Part Two of an article discussing age as a factor in general aviation accidents.

While properly fitted eye glasses may help the pilot over 45 compensate for weakened vision, there is no prosthetic remedy for slowed reflexes, other than increased caution in flight planning and procedures. Not using tobacco also helps. Aside from its obvious detrimental effects on respiration, heart function, blood pressure and digestion, smoking reduces night vision keenness and altitude tolerance. (See "Blind Spots," FAA AVIATION NEWS, Dec. 1969).

Because smokers have less altitude tolerance they should switch to the aircraft's oxygen system at 1,000 to 2,000 feet below the usual level for oxygen use—normally above 10,000 feet.

The efficiency of oxygen use by the muscles can be increased by a program of regular exercise, preferably prescribed by a physician for a specific person. (Fad exercises and diets should be avoided). Appropriate, regular exercise can increase an older pilot's stamina and his capacity to react properly in emergencies.

With the advancing years usually come prudence and caution—and for the high-time pilot, depth of experience. Several thousand hours of air time develops judgment, a knowledge of what will "work," flexibility (willingness to cancel when weather, fatigue, aircraft condition, etc., make their flight unwise), and patience. "Get-home-itis" is often more rampant in younger pilots.

The pilot who *begins* flying in his middle years will not have the advantage of lengthy flight experience, and he cannot assume that the "wisdom of age" will necessarily help him in the cockpit. He needs to be patient about learning and practicing flight procedures until he can perform them automatically without error. The intelligent older pilot sometimes makes the serious mistake of assuming that grasping a principle is equivalent to mastering a technique.

The fact that a young hotshot, who knows little or nothing about theories of flight, can fly as though he were born with wings may be galling to the more thoughtful pilot who scores 100 on his examinations, but reacts somewhat stiffly in the cockpit. But he must realistically distinguish between knowing and doing.

Older pilots are generally more affluent than their younger counterparts—they have climbed a bit further up the economic ladder. This can have a plus and also a minus value in flying safety.

Because of his better economic position, the older general aviation pilot can often afford to move up to a high performance aircraft faster than his younger counterpart—and perhaps faster than his flying ability develops. If he goes too quickly from Super Cub to supercharged twin or jet, he may have trouble accommodating himself to the drastically increased speeds and shortened margins for error.

Too Much Too Soon

The vast majority of *young* beginning pilots never see the control panel of anything more complex than a single-engine aircraft for years. Rental or purchase costs are simply beyond their means. Evenutally, if they fly professionally, they may get their hands on a light twin, later a medium twin, and much, much later a turboprop twin. Very few pilots, apart from those who have military training, have the opportunity to fly jets.

The pilot who takes up flying in his middle years is in a different position. He may have clipped his shirt tail in a single-engine aircraft that he acquired originally for fun, and later used for fishing trips. Then perhaps he decided private flying could be useful in his business, so he bought a sophisticated bird, still single engine, but high performance. The advantages of twin-engine aircraft were soon evident; and as the time/travel factor pervaded his thinking, he went in for increasingly speedy airplanes. Without realizing it, he may soon own an aircraft whose sophistication requires training for which he cannot spare the time. All of the cockpit aids in the world cannot make up for a minimum of training and proficiency practice in the air.

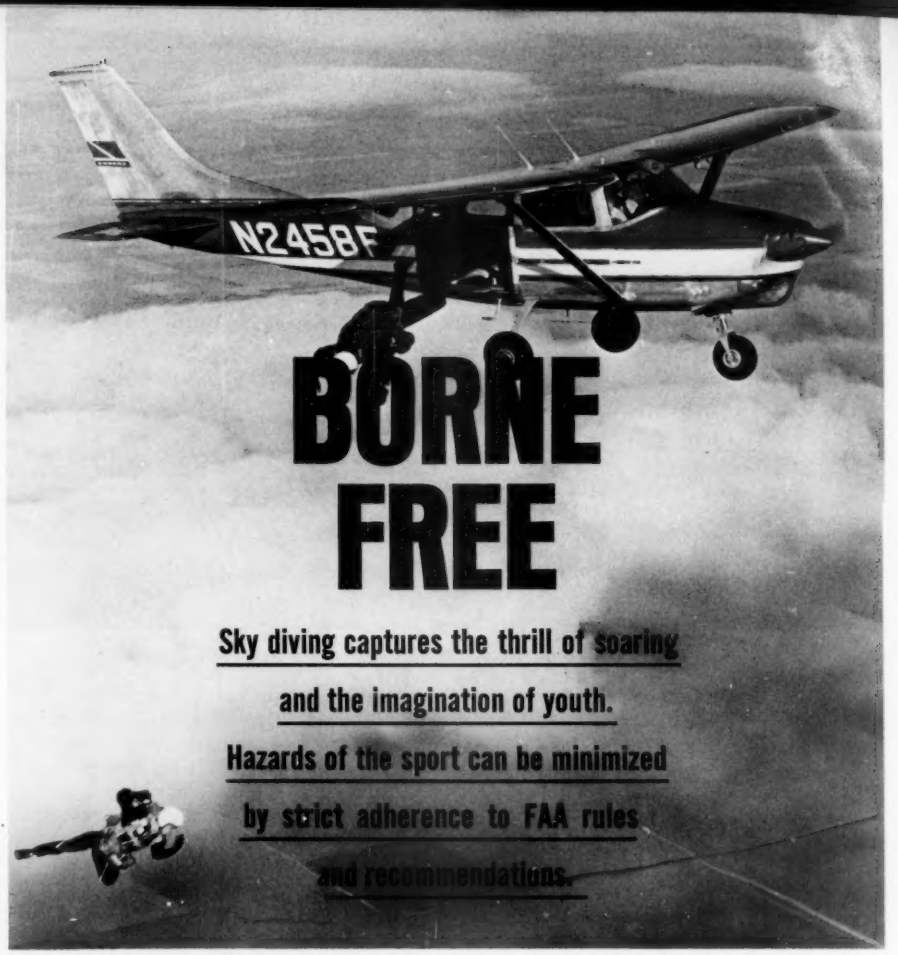
Older pilots who use aircraft in their business also face the hazard of business pressures adversely affecting pilot judgment. If a million dollar deal is hanging in the fire, the risks involved in a hurried flight through violent weather conditions may diminish mysteriously—although the hazard does not. Professional people who are continually short of time—such as doctors—may ignore weather warnings to hasten back to urgent duties, and fail to complete the flight safely. Whatever the reason, the compelling effort to "save time" is one of the habits of successful businessmen and professionals that can cause trouble when it is carried over into the cockpit of an airplane. As all good airmen know, it takes time to save time—and lives.

On the plus side, the older affluent pilot can afford better avionics, which make flying easier. He can also afford IFR training and regular check flights with an instructor. He does not need to stint on auxiliary equipment, like rescue beacons; he can insist on immediate correction of minor mechanical defects. As a rule, he is familiar with the air traffic system and uses it to the fullest advantage. Usually he keeps abreast of the latest rule changes as a matter of interest and pride.

In the long run, each individual pilot must balance his own accounts—age against youth, experience against eagerness, means against ingenuity, etc., and decide where he fits into the scale of flying excellence. Accident statistics do not lie, and they are apparently on the side of the "old guys." But they don't tell the whole story. ■

BORNE FREE

Sky diving captures the thrill of soaring and the imagination of youth. Hazards of the sport can be minimized by strict adherence to FAA rules and recommendations.



Hop and pop! Sky diver leaps from Cessna 206, certified by FAA to fly with one cabin door removed, and begins free fall descent. He will activate his main chute (worn on his back) at 2,500 feet and, if necessary, his reserve at 1,500 feet.

Three men and a girl sit crowded behind the pilot of a stripped down Cessna 182 as they slow-fly over green pastureland. The girl, a petite blonde just out of her teens, is about to lead them in a giant leap of 4,000 feet to a drop zone below. The journey will reach a terminal speed of 120 mph (174 feet per second) and will last no more than 160 seconds, if the parachute functions properly—less, otherwise.

The leader is "veteran" sky diver, Nancy Black of Oxon Hill, Md., a member of the 1969 United States Parachute Team. She is typical of the thousands of young people who have turned the lifesaving parachute into a gliding device for a thrilling and hazardous sport.

Sky diving is not recognized by Federal authorities as a form of transportation. The Federal Aviation Administration does not consider sky divers to be airmen and does not certificate them: the activity is essentially self-regulated. Nevertheless, FAA regulations concerning the *airspace* that sky divers may use, as well as their aircraft and parachutes, should be well understood by those who participate in this sport. Ignorance or defiance of the regulations has led to serious or fatal consequences on more than one occasion.

The three men making up the jump group led by Nancy Black, for example, are individually responsible for notifying the nearest flight service station or other FAA air traffic control facility as to the time and place of the proposed jump. The usual drop *zone* is a patch of farmland converted into a commerical jump center under FAA approval. Any leap ". . . over or into congested areas; open air assemblies of persons; airports; or airspace not already approved for jumping . . ." requires a special clearance.

Jump centers are privately owned and operated at relatively small cost to participants. Nancy Black and her group pay an average of three dollars a head each time they step out of the airplane aloft, and that fee includes the use of the airplane, the pilot, and the landing zone. The parachutes (two are required by FAA) and optional equipment such as a helmet, boots, jump suit and goggles, rent for about $10.

Knowing the exact altitude of the jump, the location of the drop zone and the number of jumpers, FAA Air Traffic Service will alert VFR pilots (via NOTAMs) to this activity and route IFR traffic around it. The chances of Nancy or her companions colliding with an airplane in flight are extremely small, but not beyond consideration if heavily traveled airways are used for jumping.

While looking to Nancy for leadership as jumpmaster, each member of her group knows that he is not allowed to jump if visibility is below the five mile minimum established by the FAA; or if in his descent he will pass through or into a cloud. These subsections of FAR 105 (Intentional Parachuting) are intended to prevent jumpers from endangering themselves or others by parachuting over unsuitable terrain; or over water without flotation gear; or encountering any other hazard for which they may not be prepared. The same FAR requires a light for night jumps (visible for three miles from the time the canopy opens until the ground is reached), and abstinence from drugs and alcohol prior to a jump. Technical regulations dealing with the use of static lines and parachute making and rigging are also included.

While the pilot is maneuvering the Cessna into a favorable wind position so that the jumpers have the best chance of hitting the four inch disc in the center of the 25-foot target circle below, Nancy recommends an equipment check. FAA requires each parachutist to wear a *single harness, dual parachute pack*. The jumpers now make sure that the D-ring on the rip cord of their main parachute is on the left shoulder within easy reach, and that the reserve chute is securely fastened on their chest.

Shouting above the noise (the aircraft has been certificated by FAA to fly without one of the cabin doors), Nancy has her fellow jumpers test the stopwatch sewn onto the top of the reserve chute on their chest—so they can see it by merely looking downward. In case the main parachute malfunctions, the reserve will have to open at no less than 1,500 feet above ground in order to blossom out in time to slow their velocity to a safe landing speed and prevent injuries. Placed next to the stopwatch is an altimeter, which will be checked against the aircraft cockpit instrument before the jump is made.

Once the jumpers leap out of the plane and begin their descent, they will check the stopwatch to determine the number of seconds remaining before the chute must be opened; and the altimeter, which is redlined at the lowest safe altitude height for pulling the reserve rip cord. Both instruments are referred to by parachutists to give them the time remaining before impact. They learn in their training session that it takes about 8-10 seconds to fall 1,000 feet, so they want to have the D-ring within range.

Confidence in the chute stems from knowledge that it has been carefully packed by the jumper's hands (or those of an FAA-certificated parachute rigger) within

The rig is up! Nancy Black of Oxon Hill, Md., a member of the 1969 United States Parachute Team, strains to hit dead center in the target circle. She is wearing the FAA-required two parachutes (main chute deployed; reserve chute on chest); rigid helmet; boots; and jump suit. **Left**—smoke jumping often calls for pinpoint accuracy as the jumper guides his chute down to a small clearing.

the past 120 days. The reserve chute requires certificated rigger inspection at least every 60 days. Professional riggers will inspect for weak seams, mildew, harness deterioration, rip cord positioning, etc. If the reserve is ever needed, it will be needed quickly. Even on static line jumps, where the main chute pack is opened by a line fixed to the airplane, a chute will occasionally stream out without filling with air. Professional inspections are the best insurance that the reserve chute, which is normally never used, will do its job when needed.

FAA certifies riggers according to their technical knowledge of the different types of parachutes and to their experience in packing them. A *senior* rigger may pack and maintain any type of parachute for which he is rated, except for major repair. Only a *master* rigger can also do major repairs or alterations (to the types of parachutes for which he is rated), and instruct and supervise senior riggers. FAA has also established certain standards which parachute manufacturers must follow, and periodic checkups are carried out by FAA inspectors. But in the long run, the major responsibility falls to each individual sky diver to look after his parachutes with the conscious understanding that his own life is in his hands.

Excitement builds up in the cabin as the pilot notifies the jumpers that only two minutes remain until they begin to jump. Even Nancy, who has made over 200 jumps, feels her stomach tighten in anticipation of that step into the sky and then straight on down. The thrill and the fear is always there, as it was on the day of her first jump.

A bug on sky diving since she was 10, Nancy waited patiently until she was 18 (some state and local laws set age minimums and other sport parachuting regulations) and then hurried off to the nearest commercial jump center to take the recommended United States Parachute Association (USPA) training. USPA is the largest private parachute association and sponsors regional and national competition. The Association also awards licenses according to ability and experience (Nancy has a Class C license, which is a jumpmaster rating); publishes a monthly magazine; and sponsors and finances the United States Parachute Team for international competition. The Association has a recommended training program with procedures based upon FAA regulations, but USPA has no legal authority to enforce rules: it can only withdraw membership from the offending parachutist or affiliated commercial jump center where the rules infraction took place.

Nancy's early training consisted of familiarization with parachutes, strapping them on, getting the feel of the rip cord handle, and moving about with the chutes on. Then came lessons in riding the jump aircraft, fitting and attachment of the static line, attending to jumpmaster instructions, and properly moving out of the aircraft. Later came drill on chute deployment, corrective action for malfunctions, types of landing falls, recovery from drags, and special landings (trees, wires, water, etc.)

Familiarization with personal equipment was important. The value of the protective helmet, with a proper fit, came first on the list. Boots also had to be fitted exactly to give adequate protection from the landing shock. A snugly fitting suit of zippered coveralls made for freedom of movement and a good pair of goggles (otherwise the eyes water during the fall and vision is impaired) completed the basic outfit. A study of Federal Aviation Regulations (Parts 105, 65, 149) and Technical Standard Order C23B completed her preparations.

Her first jump, as ordained by USPA rules, was a static line jump. "You just hook on, give the line a couple of tugs to make sure it's secure, and go—" she can still remember her jumpmaster saying. Today she is the leader who will stand up in a few seconds, adjust her parachute harness and motion for the three student jumpers to do the same. She will keep them busy, as she had been kept busy before her first jump making last minute equipment checks so that they do not have time to freeze up.

But Nancy herself takes time to look out the open doorway and make certain that visibility for the jump is adequate. She studies the bearing from the target, the wind indicator and the aircraft heading. She calls out her observations to the others, and watches them each nod solemnly in response. She reminds them that the main chute must open within 12 seconds, at 2,500 ft. or they must hit the reserve at once.

As the signal comes from the pilot to exit, Nancy assists the first jumper to place his left foot on the step just outside the doorway, his right foot on the wheel fairing, and grasp the wing strut to steady himself against the prop-blast and the vibration. She watches him push off backwards into the blue, plummeting down for a long tense moment until the parachute blossoms out and the jumper is swinging free in space. The second man goes, and the third, and then she herself is tumbling into a dreamlike void, waiting for the sudden savage shock that tells her she is airborne and all is well.

(Part II of this article will discuss various techniques for improving safety in sky diving.)

J. O'Hare

RUNAWAY PAVEMENT

Strange noises on the runway in Springtime could be a warning that the terra under the wheels is no longer firma.

The melting snow, the chirping chickadee, and the budding bough are reminders for the pilot that this is the time of year to be especially alert for weather-damaged runways. In the spring the earth comes alive in a very literal sense—it twists, turns, and heaves like a restless sleeper roused from a long slumber. The soil gradually grows warmer during the day and is chilled at night, alternately melting and freezing the subsurface moisture.

This cyclic stirring of the earth can break up airport pavement overnight. The first clue a pilot has that all is not well may come on taxiing or taking off from a runway that was perfectly normal in midwinter. On a concrete runway this might be signaled by a rapid-fire barrage of sharp jolts as the wheels strike misaligned concrete slabs. On asphalt runways he might find himself fighting for control when the wheels of his plane are seized by longitudinal ruts that whip the plane sharply to the right and left. Usually the soil conditions, available materials and, of course, money determine the type of pavement provided by the airport.

What causes runways to break up, and what can the airman do about it?

A wide range of materials and construction procedures are available for the construction of airport runways and taxiways. They are usually surfaced with portland cement concrete or with some form of asphalt—the latter is more commonly used. In some cases an asphalt course is laid over a concrete runway to renew the surface or to provide needed additional strength.

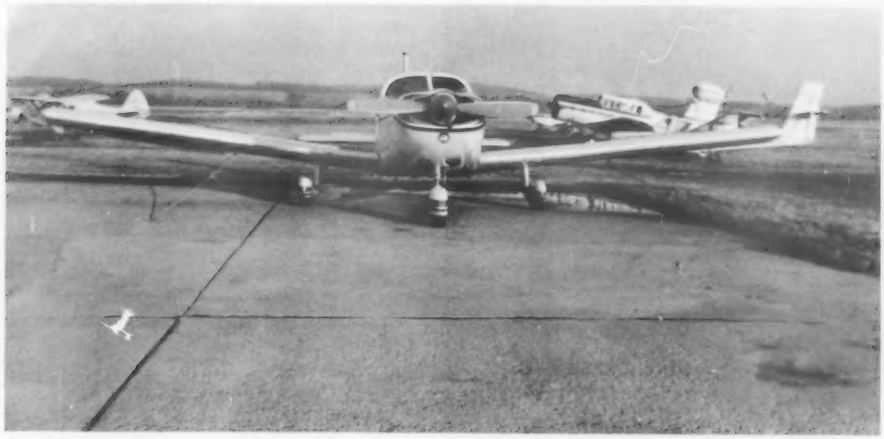
Because of its non-rigid character, asphalt paving requires no visible joints or seams. Asphalt may be less expensive to install than concrete, but may require much more maintenance in the long run. Much depends on the preparation and grading, as well as vigilance and prompt attention to maintenance needs. Moisture is the primary enemy. If water does not drain off the surface and away from the pavement edging quickly, it will filter through to the sub-base and weaken it to the point where the overlying courses sag and break open. Pot holes appear as heavy rains wash away loose material.

After years of use, asphalt runways begin to lose their elasticity. Oxidation brings about physical changes in the asphalt material, which begins to lose its elastic qualities. Skin cracks will develop, allowing moisture to penetrate, unless the surface is resealed periodically. Patching of weakened areas as soon as weather conditions permit and renewal of the surface course can prolong the life of the runways considerably.

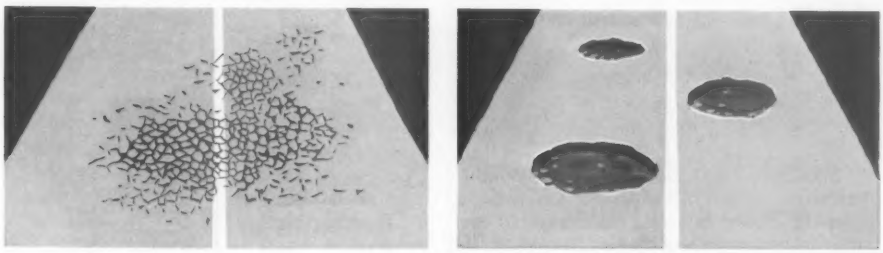
Concrete runways or taxiways are usually found at large airports with heavy air carrier traffic. Concrete has high load bearing capacity in relation to thickness and high resistance to the destructive effects of weather. It also resists deterioration from oil or fuel spillage better than asphalt, and for this reason is generally used for parking ramps and around hangars at all types of airports. Jet fuel, incidentally, causes more harm than gasoline, since it evaporates more slowly.

Concrete, being a rigid material which expands and contracts with temperature change, is laid down in slabs separated by contraction and expansion joints. The joints are filled with a flexible binder which either compresses and extrudes or shrinks as the concrete contracts or expands. Over the winter, as the concrete contracts, the joints may separate enough to admit material which is essentially incompressible, such as sand or water (when frozen).

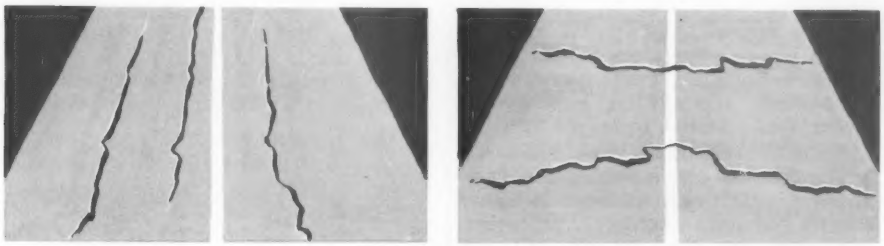
When incompressible materials infiltrate the joints in concrete, tremendous pressures are generated during later expansion of the slabs, and the concrete may fracture in the joint area. This is known as *spalling*. The fractured edges permit rainfall to enter the subsurface with progressively destructive effect. Washing away of sub-base can lead to empty spaces under the slabs which in turn causes the slabs to rock and sometimes



Puddles of water on the ramp and random cracks in the pavement are warning signs of poor drainage. Petroleum products, particularly jet fuel, have a destructive effect on asphalt surfaces. Well maintained sealer on the surface helps prevent damage.



Excessive weight on surface and unstable subgrade causes alligatoring of asphalt surfaces. Potholes are usually caused by moisture seepage washing out base.



Transverse cracks result from overloads, soft foundations, bending of slabs, lack of expansion space. Longitudinal cracks are caused by concrete shrinkage, poor joints.

to break.

Incompressible material in the expansion joints can also cause the slabs to pop-out—that is, to rise and slide over adjacent blocks. It can also cause slabs to buckle upward, cracking the surface and providing hundreds of avenues for water to enter the sub-base. Considerable yardage of concrete surface can be destroyed in a relatively short time because an insignificant appearing expansion joint has become filled with sand.

Even if the concrete slabs are misaligned only to a small degree they present a hazard. Landing gear, particularly nosewheels, can be "wiped out" entirely or sufficiently bent to prevent their retraction. Irregular surfaces can blow tires and wrench a plane out of control.

Periodic on-the-ground inspections can easily spot joint openings, surface cracks, etc., before the runway becomes a hazard to aviation, and most airport managers are especially attentive to this precaution in the spring. The pilot has no personal responsibility for the conditions of the runways he uses, but insofar as he is concerned about protecting his aircraft from damage during landing or taking off he has a natural interest in the subject. Although there are limits to what may be observed from the cockpit of a moving airplane, it is helpful, nevertheless, to know what to watch for. The following are a few of the obvious indications of potential runway problems.

- *Ponding of water on or near runways and taxiways.*
- *Build-up of soil or heavy turf at pavement edges, preventing water runoff.*
- *Clogged or overgrown ditches.*
- *Erosion of soil at runway edges.*
- *Open or silted–in joints.*
- *Surface cracking or crumbling.*
- *Undulating or bumpy surfaces.*

Airport management usually appreciates having these problems called to their attention, since frequently a patch in time, which prevents water from getting at the underlying courses, may save a major reconstruction job. If for any reason the management is unresponsive, the pilot has several alternatives: he can use another airport, or if this is inconvenient or not possible, he can seek the assistance of the Federal Aviation Administration in persuading the airport authority that remedial runway work must be done.

If the airport is a public one receiving Federal aid under the Federal-aid Airport Program (FAAP), the agreement between FAA and the airport management specifically requires management to maintain the facility in a safe operating condition. If the airport ownership changes hands, the FAAP agreement still holds and the new operator is bound by its original provisions.

Airports are periodically inspected by FAA representatives who make their own recommendations to the operators. Professional engineers for the most part, these men can tell where improvements are needed. Nevertheless, with 10,000 airports in the country, some may develop poor runway conditions between inspections.

The individual pilot who does not find the airport management sympathetic to his tale of ruts and bumps can direct his complaint to the nearest FAA area or regional office, or to the local general aviation district office (GADO) or flight service station.

If the situation is serious, FAA's Flight Standards office will issue a notice to airmen (NOTAM) describing the condition of the airport. NOTAMs are issued when any changes are made on the airfield which could affect safe operation, such as maintenance or construction work. The pilot who, on turning final, is surprised to find that a familiar asphalt strip is now a rough mass of scarred earth, undergoing pavement renovation, is an airman who disregards flight data information provided him by concerned airport managers and FAA offices.

Surprise landings of this kind, especially in the dark, can be upsetting. ■

Famous

FLYERS

Aviation's Bloomer Girl

Blanche Scott soloing a 1910 Curtiss biplane at Hammondsport, N.Y. Pilot was fully exposed to the elements as well as the gaze of the curious.

Except for an occasional gust that swept across the meadows at Glenn Curtiss' flying school at Hammondsport, N.Y., Friday Sept. 2, 1910, was a perfect day for flying. Blanche Stuart Scott, a well brought up young lady of 21, thought so too, as she zipped across the grass perched high on the wicker seat of a Curtiss biplane.

She was "grass-cutting," an interim step between ground school and solo flying where students taxied primordial one-place aircraft at gradually increased speeds to get the feel of the controls.

Suddenly the ungainly craft lifted from the ground and Blanche Stuart Scott was flying—the first American woman to solo an airplane. It was the start of a stormy career in the air that helped disprove the notion that the sky belonged to daredevil males only. The 25,000-odd women pilots of today all owe a measure of gratitude to this pioneer aviatrix whose flying petticoats were seen from one end of the country to the other. She is also credited with being the first woman test pilot (for Glenn Martin); with initiating mechanical improvements such as the adoption of enclosed sprocket wheels and chains used in flight controls and power transmission; and with the establishment of regulations on airport design and crowd control.

Born April 8, 1889, into a prosperous Rochester, N.Y., family, and educated at private schools for gentlewomen, Blanche Scott nevertheless developed unladylike affinities for gasoline engines and touring cars.

In early 1910 she became the first woman to drive an automobile across the United States, following a zigzag, 41-day, 5,393-mile course laid out by her sponsor, the Willys Overland Automobile Co.

During her westward journey, most of which was driven on rutted wagon trails and other non-roads, Blanche Scott managed to become snarled in a traffic jam at Dayton, Ohio. Hundreds of vehicles, motor and horsedrawn, and thousands of people filled the road leading to an air show at Wright Field.

Blanche paused to take in the exhibition as dozens of aircraft wheeled and swooped over the crowd. She was not impressed even after being introduced to Orville and Wilbur Wright and some of their exhibition pilots. She passed on her disdain to Amy Phillips, a newspaperwoman accompanying her. *Aeroplanes* were all right, but the open road in a 25 hp Overland touring car was where the adventure was.

She was to change her mind when she arrived in Santa Ana, Calif., the western end of her trip, and met the local Overland dealer, Glenn Martin. Called the *Santa Ana Aviator,* he flew as he lived, with style—white shirt and tie, pressed suit coat and trousers, spats, spit-shined shoes, and gloves. Martin had just succeeded in producing a successful plane of his own design, and his enthusiasm for flying was infectious.

As soon as she returned to the East Coast, Blanche beat down the objections of Glenn Curtiss and entered his flying school at Hammondsport. She was the first and last woman Curtiss ever instructed personally—he preferred to stay clear of emotional involvements.

Two-place training planes were not in use at Hammondsport. The instructor would initiate the fledgling with a series of ground lectures, demonstrate manipulating the controls, and then permit taxiing runs up and down the field (with a governor on the throttle to restrain the overly eager). The instructor would trot along shouting instructions until the speeding plane would leave him panting far behind.

Three days before her scheduled solo, Blanche Scott was guiding the ungainly biplane from the single seat thrust out in front of the wings. The seat itself was part of the control system—leaning to the left or right, the pilot's shoulders would exert pressure on a yoke mounted on the seat and connected to the wings. Blanche weaved confidently as the 35 hp engine revved up.

Suddenly she was flying. Up she went, frightened, but in control. She leveled off, and remembering Curtiss' instructions, cut the power and glided to a safe landing.

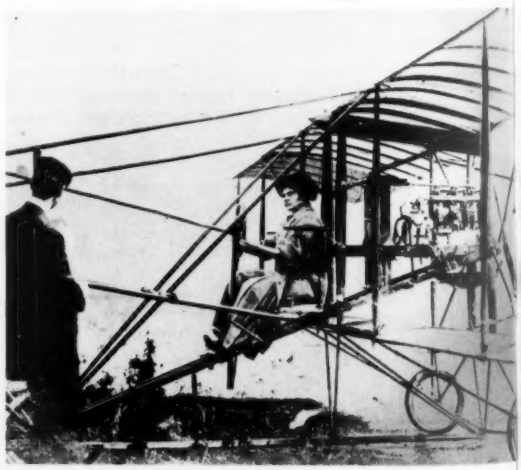
Blanche later claimed it was an accident—a gust had lifted her into the air unexpectedly. But some witnesses say she played on the romantic impulses of a mechanic to adjust the throttle stop to give her takeoff power. In any case, Blanche Stuart Scott laid claim to being the first American woman to solo.

She never applied for a license (none was needed to fly then) which weakened her claim to aeronautical priority.

(Bessica Faith Raiche soloed 14 days later and since her flight was not accidental, the honorary licensing body at the time, the Aero Club of America, honored her as the "First Woman Aviatrix in America.")

Blanche Scott, nevertheless, immediately embarked on a barnstorming career with herself as the star attraction. Essentially feminine in style and manner, she shunned the men's trousers other aviatrixes, who followed her act, affected. Blanche fancied frilly, one-piece bloomers, over which she wore the three petticoats considered proper at the time.

Barnstorming troupes sometimes earned as much as $5,000 for a two or three day



Curtiss trainer flown by Blanche Scott had tricycle landing gear, 35 hp pusher engine, shoulder controls for wing warping.

Blanche Stuart Scott, first American aviatrix to solo, was born in Rochester, N.Y. April 8, 1889; died Jan. 13, 1970. She left no kin.

stand at county fairs and other special gatherings. But this was a *gross* figure, covering all expenses—hotel, travel, salaries, aircraft repairs, and hospital. The latter was not an inconsequential expense—Blanche suffered no less than 41 broken bones plus countless bruises and lacerations in five years on the circuit. However, after all the bills had been paid, Blanche Scott frequently would have little to show for her daring beyond top billing on an oilcloth banner at some state or county fair.

On July 1, 1912, another pioneer aviatrix, Harriet Quimby, attempted to fly across Boston Harbor, around Boston Light, and back to the airport during a flying meet. Unexplicably, both Miss Quimby and her passenger were pitched out of the airplane and fell to their death. As the crowd of spectators raced across the airfield callously seeking souvenirs from the bodies and the smashed plane, Blanche and several other pilots aloft became desperate for a place to land. With fuel running out, some even sought mud banks along the water as landplaces. This experience prompted her to crusade for more effective crowd control and safer flying facilities.

Blanche Scott quit flying in 1915, after concluding that only the presence of Lady Luck beside her had kept her alive while many of her fellow barnstorming pilots died in crashes—just how many no one will ever know. "Most of us got killed," was her summary statement.

Blanche Scott remained on the sidelines of aviation, participating from time to time as an advisor, but never as a pilot. In 1948, when she was 61, she scored another "female first." On the occasion of the 38th anniversary of her first flight, the Air Force took her up in a training version of the Lockheed "Shooting Star," and she became the first woman to ride in a jet plane.

During the '50s, Blanche worked as a consultant for the Air Force Museum at Dayton, Ohio, where she helped gather an important collection of ancient planes.

After she quit flying she worked as a Hollywood script writer, and later as a radio writer and performer in Rochester, N.Y. She died on January 13, 1970, aged 80, all but forgotten by the world. But the flamboyant spirit of Blanche Scott, the flying bloomer girl, lives on in every adventuresome young woman who solos an aircraft. ■

(The editor acknowledges the assistance of author Lee David Hamilton in preparing this article.)

BRIEFS

■ AIR TRAFFIC IN THE '90s. The "third generation" air traffic control system now being implemented nationwide by FAA could, with major modifications, be extended into the 1990s, at which time a "fourth generation" system would be needed, according to the report submitted by Secretary of Transportation John A. Volpe's Air Traffic Control Advisory Committee. The two-volume report may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Wash., D.C. Volume 1, the basic report, costs $1.25. Volume 2, the technical discussion, is $4.25.

■ TRACKING AIRCRAFT ACROSS THE SEA. Beginning in June controllers watching a pictorial display at the Oakland Air Route Traffic Control Center will observe the progress of Hawaii-bound aircraft for about half the distance to Honolulu (about 1,200 miles). The Center will be evaluating a new monitoring system using digital data links between the aircraft and the display. An alphanumeric tag will indicate the aircraft's altitude, flight number and airline. By contrast, present day radar is unable to track planes more than about 200 miles off the coast.

■ MANUFACTURERS DEFECTS. A new FAA rule, which became effective on April 2, requires all manufacturers of aeronautical parts to report all defects, failures, or malfunctions they discover in their products which could result in a hazard to flight. The agency must be notified within 24 hours of the discovery. The practice will speed up FAA corrective action for the protection of aircraft owners and operators, such as the issuance of airworthiness directives.

■ AIRCRAFT REGISTRATION FORMS (AC 8050-73) are now being mailed out to 180,000 aircraft owners by FAA. Part 1 of the two-part form must be completed and returned by June 30, or the registrant risks suspension or revocation of his certificate. Part 2 is voluntary. There is no fee or user charge for reporting this information concerning aircraft activity, which will be used to improve safety. Owners who do not receive a card in the mail may obtain forms at all FAA GADOs or ACDOs—not at flight service stations.

■ WHERE THERE IS SMOKE. FAA is considering bids for a study leading to the establishment of design criteria for reducing the emission of nitrogen oxides from jet aircraft engines. Administrator John H. Shaffer, who is preparing to issue an advance notice of proposed rulemaking on aircraft smoke emission, wants the study to find a means of cutting down on oxides of nitrogen without increasing emission of carbon monoxide and other unburned hydrocarbons.

COMMUTERS FLY HIGH. Passengers who fly via air commuter lines into Washington National Airport now have a terminal of their own, possibly the first of its kind anywhere. The 13 commuter airlines operating into Washington National link the nation's capital directly with 32 cities and provide links to about 70 additional cities scattered over the Middle Atlantic Seaboard from Boston to Richmond to Pittsburgh.

Anticollision Light Rule Changes Under Consideration

FAA has issued an *advance* notice of proposed rule making to develop improved standards for anticollision lighting systems for current aircraft.

In the advance notice the agency seeks to explore five major questions:

- Should the currently prescribed color for anticollision lights be changed from red to white?
- Should FAA require that anticollision lights be displayed during daylight hours?
- Should currently prescribed minimum intensity level (100 effective candles in the horizontal plane) be raised? If so, to what level?
- Should FAA require that all aircraft (even those older aircraft that are exempted under current rules) be equipped with anticollision lights?
- Are there any other issues relating to anticollision light standards that warrant the attention of FAA at this time?

Current rules require all airplanes certificated under FAR Part 25 and those airplanes certificated under FAR Part 23 for night operations to have an anticollision light system. This system consists of one or more flashing, red lights installed in such locations as to be capable of illuminating the vital areas around the airplane without imparing the flight crew's vision or detracting from the conspicuity of the position lights on the wingtips and the tail.

Anticollision lights also must meet certain standards with respect to field of coverage, flashing characteristics, color and light intensity.

Comments on the advance notice (Docket No. 10129, Notice 707) should be submitted by April 30, 1970, to FAA Rules Docket, GC-24, 800 Independence Ave., S.W., Wash., D.C. 20590.

"Architect of Air Traffic System" Closes Federal Career

A 32-year career in the Federal Aviation Administration and its predecessor agencies has come to a close with the retirement of Deputy Administrator David D. Thomas.

Mr. Thomas, who began his Federal aviation career as a controller at Pittsburgh in 1938, eventually headed the Air Traffic Service. He has also held the positions of Associate Administrator for Programs and Acting Administrator (from July 1968 to March 1969).

Among the many honors awarded Mr. Thomas were the President's Award for Distinguished Federal Civilian Service, the Secretary of Transportation's Award for Outstanding Achievement, and the Monsanto Aviation Safety Award of the Aviation/Space Writers Association. The latter cited him as . . . "the principal architect of the U.S. air traffic control system."

Mr. Thomas will remain in aviation in the private sector.

New FAA Publications Tally Planes, Offer Airport NAVAID Design Data

Two new publications of interest to general aviation and air carrier pilots have been issued by the Federal Aviation Administration. They cover the 1968 census of civil aircraft, and airport design standards.

The "Census of U.S. Civil Aircraft" covers both the 1968 air carrier and general aviation fleets as of December 31, 1968, in its 165 pages. Information on both the size and composition of the civil aircraft fleet and historical data are provided along with a breakdown of civil aircraft registration by type, state and county. Copies of the publication can be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402 for $1.75 per copy.

The 71-page advisory circular entitled "Airport Design Standards—Site Requirements for Terminal Navigational Facilities" (AC 150/5300-2A) provides guidance for engineers and airport management regarding the location, layout, clearance and area requirements for FAA air traffic control and air navigational facilities. It also contains current FAA policy and programs. The circular, which replaces AC 150/5300-2, is available free from the DOT Distribution Unit, TAD 484.3, 800 Independence Ave., S.W., Wash., D.C. 20590.

FAA SEMINARS FEATURE STOLPORTS

Airworthiness standards for V/STOL aircraft and the planning of metropolitan STOLports will be the focus of two seminars at the FAA, April 20-24.

The STOLport sessions will take place on April 20 and 24, with the V/STOL airworthiness meetings on April 21-23. The opening session on April 20 will feature presentations by FAA personnel on the various components to be considered in the planning and design of STOLports.

On April 24 conferees and FAA officials will take up a preliminary draft of an FAA advisory circular on the planning and design of STOLports.

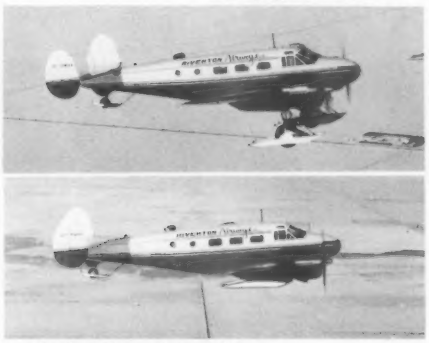
Persons interested in attending either the April 20 or April 24 meetings or both should contact George Buley, Federal Aviation Administration, AS-560, 800 Independence Ave., S.W., Wash., D.C. 20590. Phone: (202) 962-5471.

• Retractable Skis

We refer to your article "Schussing Down the Runway" in the January FAA AVIATION NEWS and wish to take exception to the statement that "retractable gear must remain locked down when equipped with skis."

All the DC-3s we've seen on skis are the retractable type, and Bristol of Winnipeg, Canada, developed the fully retractable wheel/ski for the ubiquitous Beech D-18s. In this installation the skis lie flush with the lower nacelle and are nested by the addition of short skirt fairings to close the gap between the lower nacelle and the ski deck. This installation reduces the landplane cruise speed by about 5 mph with the gear up. The tail wheel is permanently locked down to simplify the installation.

J. M. Reid
Bristol Aerospace Ltd.
Winnipeg, Canada



• Protective Coloration

Has anyone given thought to the idea of using bright fluorescent paint on planes to prevent mid-air collisions? Markings of this sort would be especially obvious under an overcast.

Fred W. Grant
Clinton, N. Y.

FAA conducted a number of conspicuity studies during the '60s, one of which researched the role of paint in mid-air collision prevention. Findings indicated that for conspicuity purposes some paint on the surfaces of an aircraft is measurably better than no paint. For purposes of color recognition, the fluorescent paints in the orange and red portions of the spectrum are to be preferred over the other fluorescent colors and over enamels of all colors.

However, present methods for applying and maintaining these paints are relatively expensive and complicated, and their durability is variable and relatively short.

• Tall Terrors

As a flight instructor who flies in an area where a tall TV tower was recently erected I have lately been giving considerable thought to improving the visibility of these skyscraping structures.

I propose that a belt of strobe lights, keyed to flash the TV station identification letters, be placed around the towers at the 500-, 1,000- and 2,000-foot levels. The 2,000-foot level would be marked with a white strobe, the 1,000-foot level with red strobes, and the 500-foot level would be marked with red base lights and a blue strobe light.

Also, these tall towers could be rigged to transmit a weak VHF signal, wide-banded with the tower identification that could easily be heard within a 10-mile range. This could operate simultaneously in code with the colored strobes.

Harold A. Lossner
Des Moines, Iowa

FAA has developed and is evaluating a high intensity lighting system to alert pilots to the existence of tall structures. During the day, each light in the system will have an effective intensity of at least 200,000 candelas at every point in a horizontal plane around that light. At night, each light would be reduced to about 10 per cent of its effective daytime intensity.

The maximum distance between light units would be approximately 400 feet, with the lights timed to flash synchronously at about 40 flashes per minute. Tests have determined that synchronous flashing is the most effective way to attract attention and the least likely to be confused with aeronautical lights used for navigation.

Over the years consideration has been given to using aural signals as a tall tower warning but the idea has been abandoned after it was apparent that pilots might fly into the structure when using it as a homing device. In addition, an area having several tall towers near one another emitting an aural signal could be confusing, rather than helpful.

• Seabird Rises from the Ashes

I read with interest your fine article on the Budd Pioneer (Jan., 1970). However, I was jolted by the fourth from last paragraph (". . . a stainless steel airplane was built by Fleetwings Inc., but this plane has vanished without a trace.") I raced out to my hangar and was happy to find that my airplane, Fleetwing *Seabird* Serial #1, had not disappeared. It is alive and well at San Fernando Airport, and I flew it 45 minutes today.

Channing Clark

Fleetwings, Inc. of Bristol, Pa., built one (steel airplane) F-4 prototype in 1937 and five F-5 production models in 1938 and 1939. The prototype is owned by Channing Clark of Hollywood, Calif.; I own the only airworthy production model *Seabird* remaining. It is in excellent condition, but currently out of license.

Gene Chavis in Anchorage, Alaska, has a *Seabird* that he damaged on a water take-off. He plans to rebuild it some day. It is my opinion that this plane is probably the very finest single engine amphibian ever built. There have been crashes due to human error, but never a fatal accident.

Edward D. Oliver
Daytona, Beach, Fla.

Photo courtesy of Channing Clark

Several lines of type, inadvertently dropped from the article in FAA AVIATION NEWS, should have explained that although Fleetwing's first steel plane has disappeared, at least five Seabirds *were built subsequently and several are still cherished. Readers Demetrios Copadis, Leonard Kohn, and Robert L. Taylor, President of the Antique Airplane Assoc., have helped shed light on this bird.*

Added note: according to James C. Reddig, Webster, N.Y., "the Seabird *carried five persons at 150 mph top speed with a Jacobs 285 HP engine and landed at 47 mph. The CAA owned and operated one of these airplanes in the 30's. Mr. Channing Clark's* Seabird *served on Coastal Patrol against the German submarines with the Civil Air Patrol during World War II."*

FAA Aviation News welcomes comments from the aviation community. We will reserve this page for an exchange of views. No anonymous letters will be used, but names will be withheld on request.

• Separate Facilities

After reading "Hourly Flight Quota Extension at Major Airports" in the January FAA AVIATION NEWS I would like to suggest FAA go a step further and *exclude* general aviation from high density airports.

In Los Angeles, for example, the big jets for the most part use LAX while general aviation has more than 15 airports within 25 miles of that airport. Six of these have runways longer than 5,000 feet which cannot accommodate the larger air carrier aircraft but would be fine for general aviation planes.

I'm a general aviation pilot preparing for the certificated flight instructor rating and I hope FAA continues to try to accommodate the major air carriers—while continuing to build more general aviation airports.

Michael L. Pappas
Marina Del Rey, Calif.

• Draping the Cabin

Curtains installed in general aviation aircraft violate the "see and be seen" concept of flight safety, and show a lack of understanding or responsibility on the part of the owner or pilot. Most pilots with whom I have discussed this realized the restriction of visibility but did not recognize the hazard.

Although one popular manufacturer shows his lack of safety concern by installing curtain rods, pilots certainly can explain to the ladies that pretty drapes can cost him 50 percent of his peripheral visibility.

Walter B. Stout
Reseda, Calif.

• Radar Radiation

The statement that airborne weather radar rays are not dangerous to human beings, as stated in the article "Weather Eyes" in the January 1970 FAA AVIATION NEWS, is misleading. Weather radars can exceed the safe power density as defined in FAA Handbook PT P 3900.2A. Anyone taking it directly may sustain permanent physical damage.

Ronald L. Vavruska
New York City

Weather radar is of the scanning type and cannot be turned on, even for test, without causing the antenna to oscillate to and fro. Thus, the transmitted radar energy is not concentrated at a single point for long, and consequently the radiation is too low to cause injury to a human being by presently accepted standards. These standards are constantly under study and subject to revision, and of course, directing weather radar at persons close by is not advised.

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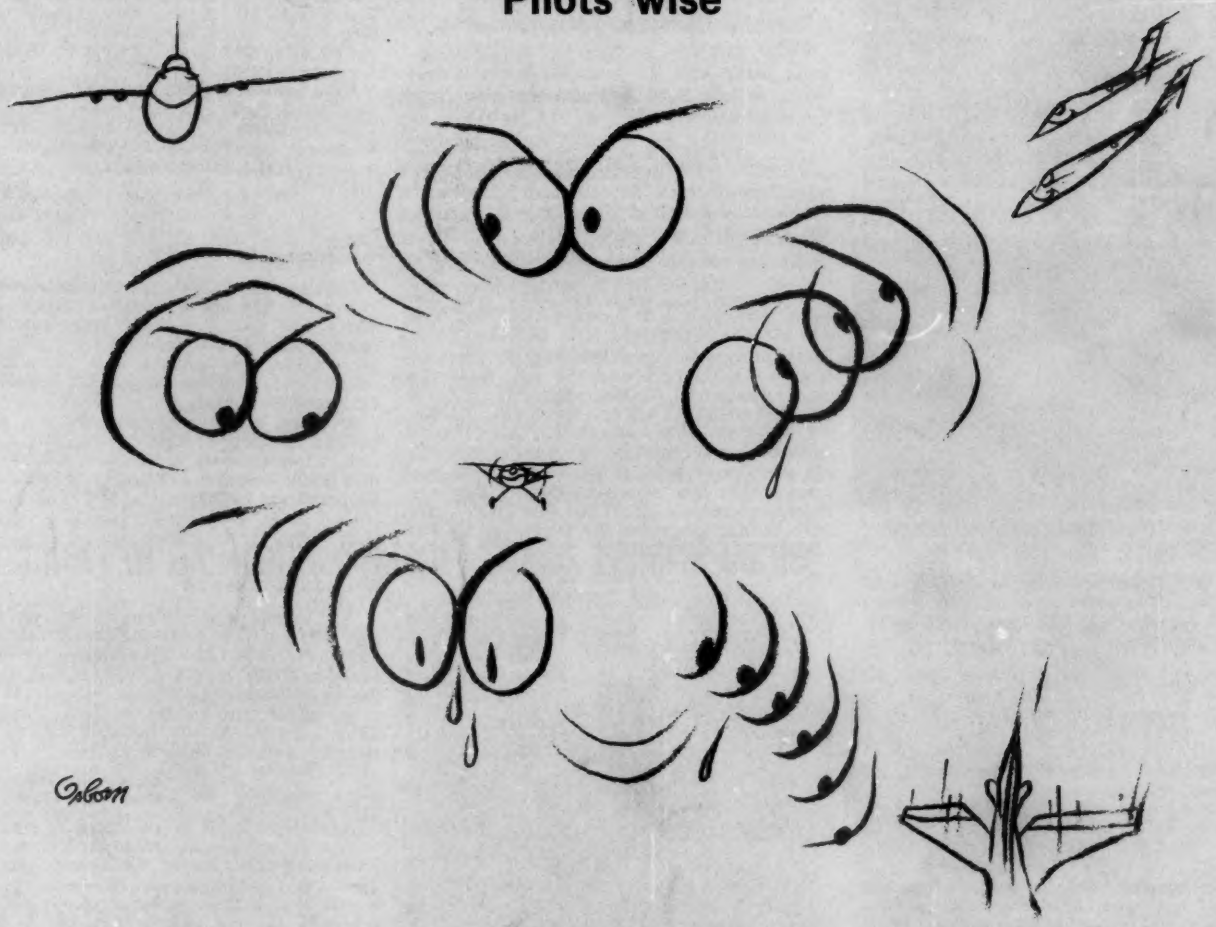

Roll their eyes

Suggested by Donald E. Miller
Florissant, Mo.